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### The impact of non-mandatory corporate governance on auditors' client acceptance, risk and planning judgments

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# The impact of non-mandatory corporate governance on auditors' client acceptance, risk and planning judgments

Divesh S. Sharma, El'fred Boo and Vineeta D. Sharma\*

**Abstract**—We examine the effect of non-mandatory corporate governance practices on a comprehensive set of audit judgments.<sup>1</sup> We provide initial evidence on how auditors respond to corporate governance in an institutional environment where corporate governance is not mandated by law. Based on the agency and resource dependence theories, we hypothesise associations between corporate governance and auditors' judgments relating to client acceptance, risk assessments, and the extent and timing of substantive testing. Sixty Big 4 audit managers from Singapore are randomly assigned to one of three experimental conditions comprising weak, moderate and strong corporate governance. Our results show auditors make more favourable client acceptance judgments when corporate governance is stronger. Clients with stronger corporate governance are assessed as having lower control environment risk. After controlling for control environment risk, we find that stronger corporate governance increases auditors' reliance on the client's internal controls and reduces the extent of substantive tests. When corporate governance is stronger, we observe that auditors conduct more substantive testing during the interim period compared to the year-end. Our findings suggest that audit strategies are responsive to the strength of a client's corporate governance.

**Key words:** agency theory; corporate governance; resource dependence; audit judgment; Sarbanes-Oxley Act

## 1. Introduction

Following the 1997 Asian financial crises, the World Bank, IMF and the OECD required Asian nations, including Singapore, to address shortcomings in corporate regulations. Among others, Singapore responded by reforming corporate disclosure regulations and introducing the Code of Corporate Governance (the Code) in 2001. Compliance by listed companies is encouraged by the Singapore Stock Exchange (SGX). The Code addresses four areas of governance, namely, board of directors, remuneration, accountability and audit, and communication with shareholders. The nature of corporate governance set out in the Code follows the Anglo-American model because

Singapore is an international financial hub. It hosts many multinational companies and has a globally-oriented financial market.

The roles of the board of directors and its sub committees, such as the audit committee, outlined in the Singapore Code are similar to the US Sarbanes-Oxley Act (2002) (SOX) and the Combined Code (2006) of the UK. For example, the board and audit committee are responsible for ensuring the quality of the financial reporting system, the integrity and effectiveness of the internal control system, and appointing and remunerating the auditors. There are, however, some differences between the corporate governance environment in the US/UK and Singapore. Unlike the US, compliance with the Singapore Code is not mandatory. The Singapore Stock Exchange (SGX) requires companies to disclose their corporate governance practices and to explain non-compliance in their annual reports. The Singapore Code does not have legal force, unlike SOX in the US. The guidelines in the Singapore Code are principles-based which companies can tailor to their needs. The SOX, on the other hand, takes a prescriptive rules-based approach that companies must follow. For example, Section 404 of SOX requires auditors to attest to management's assessment of internal controls

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<sup>1</sup> We use the term 'judgment' in the sense of 'decision' to be consistent with the prior literature (e.g. Cohen and Hanno, 2000; Cohen et al., 2007) examining client acceptance and other audit judgments.

over financial reporting. There is no such requirement in the Singapore Code. Finally, non-compliance with SOX in the US has serious potential consequences including financial penalties and imprisonment for management and those responsible for overseeing compliance. The Singapore Code does not specify such consequences.

These illustrative differences suggest that in an institutional environment where corporate governance rules are mandated by law, non-compliance has serious ramifications for management and those responsible for overseeing compliance. Therefore, auditors are expected to pay attention to corporate governance practices in such a setting. In an institutional setting where the adoption and monitoring of corporate governance practices is not mandatory and lacks legislative force, such as Singapore, it is not clear how auditors would react to voluntary adoption of principles-based guidelines. Singapore firms may implement governance mechanisms that appear to comply with the Code but in substance are 'tools' for managerial entrenchment. Such conditions raise an empirical question about how the market and agencies such as auditors perceive corporate governance structures implemented by Singapore companies.

In this study, we address the empirical question of how the strength of non-mandatory corporate governance affects Singapore auditors' judgments. We extend prior research (e.g. Cohen and Hanno, 2000) by examining a more comprehensive set of corporate governance factors, more recent data in a period of significant reforms, and a different institutional setting. The extent to which auditors in Singapore would rely on their clients' governance mechanisms is unclear for two main reasons. First, auditors in Singapore are cognisant of the non-mandatory status of corporate governance practices and the discretion afforded to management in the implementation and assessment of such practices. Consequently, Singapore auditors may 'discount' and pay less attention to corporate governance in their audit client risk assessments. On the other hand, the 'push' for reforms by the World Bank, IMF and OECD particularly in Asia, and significant governance developments in the US and the UK may influence Singapore auditors to pay more attention to corporate governance as it is the apex of a firm's control environment. An incentive for auditors to focus on corporate governance is the presence of large US and UK multinational firms operating in Singapore as failure to do so could result in adverse economic consequences (i.e. lost fee revenues from audit and consulting). Second, the small body of prior research based in the US does not provide sufficient and unequivocal empirical evidence to suggest that auditors plan their audit according to their perceptions of the strength of a client's corporate governance.

More importantly, we do not know whether, and to what extent, the results of the limited research in the US can generalise to a non-mandatory corporate governance setting such as Singapore. Our study also responds to the calls by Bedard and Johnstone (2004), Cohen et al. (2004) and DeFond and Francis (2005) for further research to enhance our understanding of the role of corporate governance in the financial reporting and assurance process, and to provide guidance to policy-makers and audit practice.

Sixty audit managers from three Big 4 audit firms are randomly allocated to one of three experimental treatment conditions – weak, moderate and strong corporate governance. Our results show significant differences in auditors' client acceptance, risk and planning judgments across the experimental conditions. We observe that auditors make more favourable client acceptance, risk and planning judgments when corporate governance is stronger. The results generally suggest that auditors adopt strategies responsive to the strength of a client's corporate governance. Section 2 of the paper reviews the relevant prior literature and develops the hypotheses. We then describe the research design and method (Section 3) followed by the results (Section 4). Section 5 concludes with a discussion of the findings and opportunities for further research.

## 2. Literature review and hypotheses development

In this section, we review the prior behavioural literature on corporate governance and audit judgments. We also describe the agency and resource dependence theories, which provide the foundation for our hypotheses. We view the agency and resource dependence theories as complementary because they provide explanations incremental to each other on various aspects of a firm's environment and corporate governance. Boards conduct monitoring activities (agency view) and provide resources (resource dependence view). Hillman and Dalziel (2003) contend that research that does not integrate the agency and resource dependence theories are myopic and such studies provide an incomplete understanding of corporate governance.

### 2.1. Corporate governance and the audit process

A significant body of academic research has emerged on the relationship between corporate governance and the financial reporting process (e.g. Beasley, 1996; Dechow et al., 1996; Beasley et al., 1999; Klein, 2002; Abbott et al., 2004). Although the audit process is a vital component of the financial reporting process, there is a paucity of research on corporate governance and audit judgments (Bedard and Johnstone, 2004; Cohen

et al., 2004; DeFond and Francis, 2005). We review the relevant behavioural studies to date.

Cohen and Hanno (2000) investigate the impact of the quality of corporate governance and management control philosophy on pre-planning and planning judgments. Their results show that auditors are more likely to accept clients and reduce substantive testing for clients with stronger corporate governance. Contrary to expectations and professional guidance statements, no conclusive effects are observed on the timing of testing.

Cohen et al. (2002) interview auditors to explore the impact of corporate governance on the audit process. They report that all respondents, including seniors, managers and partners collect and use governance information when making their audit decisions. Their interviewees state that audit committees are ineffective and of secondary importance because they lack authoritative power. Cohen et al. (2002) report that auditors may increase their reliance on the audit committee if they are entrusted with greater power and responsibilities over the financial reporting process.

Finally, Cohen et al. (2007) investigate the impact of board focus (agency and/or resource dependence) on auditors' program planning judgments. In their experimental study, 68 audit partners and managers evaluate a case where the focus of the board is manipulated in a 2×2 between-subjects design: agency focus (stronger or weaker) and resource dependence focus (stronger or weaker). Their results show that when the board is assessed as stronger on the agency and resource dependence dimensions, auditors decrease planned audit hours. However, they find no significant effect of the board on inherent risk but some evidence of the effect of the board on control risk at conventional significance levels.

## 2.2. Corporate governance and client acceptance judgment

The client acceptance judgment is a critical first phase in the audit firm's risk management process, given the increasing risk of litigation and accounting scandals. Audit firms continue to devote considerable attention to the client acceptance judgment by evaluating client-related risks and adopting audit strategies to manage such risks to acceptable levels (Johnstone and Bedard, 2003; Bell et al., 1997). However, little is known about how auditors make the client acceptance judgment

(Johnstone, 2000) and particularly so in the current environment with client-business risk at heightened levels (Bedard and Johnstone, 2004).

When making the client acceptance judgment, auditors assess the engagement risk associated with a potential client. Engagement risk comprises three components: client's business risk, audit risk and auditor's business risk (Johnstone, 2000).<sup>2</sup> Johnstone (2000) shows that partners evaluate client-related risks to assess the audit firm's business risk in making a client acceptance judgment. However, she also finds that partners do not use proactive risk-adaptation strategies (e.g. adjusting the audit fee) to mediate the risk effects of the client acceptance judgment. Similarly, Johnstone and Bedard (2003) find that auditors do not adopt risk-adaptation strategies when making client acceptance judgments. Rather, auditors concentrate on identifying and screening out clients with unacceptable risks.

As the strength of the board of directors and audit committee is significantly associated with the quality of the financial reports (e.g. Beasley, 1996; Dechow et al., 1996; Beasley et al., 1999; Klein, 2002; Abbott et al., 2004), it potentially affects auditors' risk assessments. These findings in the literature are consistent with the agency view of the board and audit committee. Fama (1980) and Fama and Jensen (1983) posit that a firm's internal governance plays an important role in shaping and enhancing effective operation of its internal control system. The board of directors, through the audit committee, is the primary internal governance mechanism that is responsible for the effective oversight of the overall control environment. The effectiveness of this oversight function is largely dependent on the independence of the directors serving on the board and the audit committee (Fama, 1980; Fama and Jensen, 1983). Such independence comes from outside directors who have incentives to protect their reputation and avoid litigation risk.

Given the link between a client's strategies and the assertions in the financial statements, Bell et al. (1997) highlight the necessity for auditors to understand and place more weight on the processes that determine a client's business strategies. This implies that auditors should consider a firm's corporate governance because resource dependence theory posits that the board of directors plays a major role in setting and monitoring the firm's strategies and how the firm positions itself in its business environment to achieve its objectives (Pfeffer, 1972; Pfeffer and Salancik, 1978; Hillman and Dalziel, 2003). Resource dependence theory embraces the view that board members enhance the value of the firm through developing and monitoring a firm's strategic responses to deal with the dynamic and competitive environment. Pfeffer

<sup>2</sup> Client business risk is the risk that the client's economic condition will deteriorate in either the short or long term. Audit risk is the risk that the auditor fails to appropriately modify his opinion on financial statements that are materially misstated. Auditor's business risk is the risk that the audit firm will suffer a loss from the engagement, arising either from a lack of engagement profitability or future litigation (Johnstone, 2000).



(1972), Pfeffer and Salancik (1978), Hillman and Dalziel (2003), and recent studies in accounting utilising resource dependence theory (Sharma, 2006; Cohen et al., 2007) argue that the ability of the directors to perform this role is dependent on their experience, industry knowledge and their understanding of the economic climate.

The economic consequences of the adopted strategies are reported in the financial statements. Thus, auditors may assess whether the firm is taking advantage of the resourcefulness and expertise of the board of directors to develop strategies to ensure its continuity as a going concern. If a client's economic condition deteriorates due to poor business strategies, the likelihood of financial misreporting and audit engagement risk are likely to increase. Since performance declines and financial misreporting are associated with relatively weaker corporate governance, we expect, *ceteris paribus*, client-related risks to decline in a stronger governance environment. Therefore, we hypothesise that:

**H1:** Stronger (weaker) corporate governance [board of directors and audit committee] will lead to more (less) favourable client acceptance recommendation.

### 2.3. Corporate governance and risk assessments

Corporate governance is an important entity-level factor that sets the tone for the overall control environment that has significant implications for auditors' risk judgments. We jointly examine control environment and inherent risk judgments since Messier and Austen (2000) find a knowledge-based dependence between auditors' assessment of inherent risk and control environment risk. We focus on entity-level risk assessments because corporate governance provides holistic monitoring of a client's control environment and the financial reporting process. Therefore, our reference to inherent risk and control environment risk is made at the entity level rather than at a particular transaction cycle level.

Inherent risk is a function of how a client responds to risks in its business environment. The strategic business process model suggests that organisations develop and modify strategies to fit its environment (Bell et al., 1997). The board of directors plays an important role in this process and

thus it could influence auditors' assessment of inherent risk. A stronger board of directors with relevant industry knowledge and experience is in a better position to manage strategies responsive to the environment (Pfeffer, 1972; Pfeffer and Salancik, 1978; Hillman and Dalziel, 2003; Sharma, 2006; Cohen et al., 2007). Such clients may be assessed lower inherent risk because they are less likely to face financial difficulties and engage in financial misreporting.

A weaker internal control environment is likely to be associated with higher control environment risk (Cohen and Hanno, 2000; Cohen et al., 2007) and greater likelihood of financial misreporting (Beasley, 1996). The strength of corporate governance is likely to affect auditors' control environment risk assessment because a strong (weak) board and audit committee are part of the overall control environment that provide the backbone for the effective (ineffective) operation of internal controls (Fama, 1980; Fama and Jensen, 1983; Cohen and Hanno, 2000; Cohen et al., 2007). Authoritative guidance statements (e.g. COSO, 1992; SOX, 2002) empower the board and audit committee to oversee the internal control system and management's financial reporting policies. The audit committee also mediates disagreements between the auditor and management with prior research showing a strong audit committee supporting the auditor (Carcello and Neal, 2000; 2003). This discussion suggests the following hypothesis:

**H2:** Stronger (weaker) corporate governance [board of directors and audit committee] will lead to lower (higher) inherent risk and control environment risk assessments.

### 2.4. Corporate governance and audit planning judgments

Professional standards require auditors to perform auditing procedures designed to reduce client-related risks to an acceptable level. As auditors' assessment of client-related risks increases, the level of audit effort required increases. Although theoretical predictions are quite clear, the empirical evidence in prior studies is unclear about auditors' sensitivity to client risk factors.<sup>3</sup> More importantly, we know very little about how a client's corporate governance, a client-risk factor, affects audit planning judgments. Auditing standards require auditors to understand sufficiently the components of internal control and to utilise this knowledge in making judgments concerning the nature, timing, and extent of substantive testing. Thus, corporate governance, which is often regarded as the apex of a firm's internal control system (Fama, 1980; Fama and Jensen, 1983), should affect the extent and timing of audit testing.

<sup>3</sup> Behavioural experiments generally report evidence of risk responsiveness in planning judgments (e.g. Messier and Plumlee, 1987; Maletta and Kida, 1993; Zimbelman, 1997; Johnstone, 2000). However, archival studies report results indicating auditors' risk responsiveness are mixed. Some recent studies such as Bell et al. (2001) and Johnstone and Bedard (2001) report that auditors adapt their planning judgments to assessed risks, while other studies report that they do not (e.g. Mock and Wright, 1993). See also Bedard et al. (1999) for a comprehensive review of the related literature.

#### 2.4.1. *Corporate governance and extent of planned substantive testing*

To our knowledge, the small body of literature examining the impact of corporate governance on substantive testing is based in the US. Therefore, we do not know whether the results observed in the US, where corporate governance standards are mandated, can be generalised to a non-mandatory corporate governance setting such as Singapore. As explained earlier, because auditors in Singapore may either 'discount' or emphasise a client's corporate governance when making audit judgments (see 'Introduction' section), we do not know the extent to which corporate governance would influence auditors' substantive test judgments. Furthermore, the results of prior studies are inconsistent and are probably due to the different perspectives taken by the researchers. These studies adopt either a risk-based or a demand-based perspective. The three behavioural studies to date employ the risk-based perspective. Cohen et al. (2002: 580) adopt a risk-based perspective and propose that:

'For governance factors to affect audit plans, the auditor must first recognize and properly assess the strength of corporate governance and, second, appropriately weight and use this evidence to develop an audit plan. If the governance structure is strong, an auditor could potentially reduce sample sizes (e.g. number of locations visited for the evaluation of inventory) and thus reduce the extent of costly substantive testing.'

Cohen and Hanno (2000) report results consistent with the risk-based perspective described above by showing that corporate governance has a direct significant effect on auditors' planned extent of substantive tests. More recently, Cohen et al. (2007) show that a client characterised by a board with stronger agency focus and resource dependence focus reduces the number of planned audit hours compared to a typical audit.

Adopting a demand-based perspective in their archival study, Carcello et al. (2002) examine the relationship between board characteristics and audit fees for Fortune 1000 companies. They find that a stronger board demands closer audit scrutiny and quality which suggests greater audit effort by the external auditor and higher audit fees. In contrast, Bedard and Johnstone (2004) do not observe significant direct effects between corporate governance and audit effort and audit billing rate, implying that there is limited support for the demand-based perspective. They suggest the risk-based approach provides a more plausible explanation of the association between corporate governance and audit effort expended on audit tests.

We adopt a risk-based perspective as our study examines auditors' perceptions and responsive adaptation to a client's corporate governance. Our position is further supported by auditors increasingly placing more focus on the risk-driven approach in conducting their audit (Bell et al., 1997; Cohen et al., 2002). A risky client will require greater audit effort in order to reduce audit risk to an acceptable level. The agency and resource dependence theories suggest that stronger boards of directors and audit committees are associated with stronger controls and lower risks of financial misreporting. Such beliefs could result in greater reliance on internal controls and lower planned substantive testing. Thus, we hypothesise that:

**H3a:** Stronger (weaker) corporate governance [board of directors and audit committee] will lead to greater (lower) auditor reliance on internal control.

**H3b:** Stronger (weaker) corporate governance [board of directors and audit committee] will lead to less (more) extensive substantive audit testing.

#### 2.4.2. *Corporate governance and timing of substantive testing*

Investigating the timing of audit testing is important because the timing of substantive procedures has implications for audit efficiency and effectiveness. For instance, emphasis on year-end testing can increase staff hours, impose pressures to meet deadlines, and create staff shortages (McNair, 1991). The study on governance and the timing of audit testing by Cohen and Hanno (2000) finds significant uncertainty and lack of consensus regarding the effects of corporate governance on adjustments to the timing of audit testing.

We propose that if auditors perceive stronger corporate governance, then more substantive testing may be shifted to interim periods. Although clients are more likely to manipulate their earnings near the financial year-end, the agency view suggests that stronger boards of directors and audit committees reduce such efforts and lead to higher earnings quality (e.g. Beasley, 1996; Dechow et al., 1996; Beasley et al., 1999; Klein, 2002; Abbott et al., 2004). Effective monitoring by the board and audit committee increases the strength of the internal controls and reduces the risk of material misstatements. Under such conditions, auditors are likely to perform more substantive tests during the interim period. This leads to our final hypothesis:

**H4:** Stronger (weaker) corporate governance [board of directors and audit committee] will lead to auditors conducting more (less) substantive testing during the interim period.

### 3. Research design and method

#### 3.1. Experiment overview

We randomly assigned participants to one of three experimental conditions: weak, moderate or strong corporate governance. All participants in the experiment received detailed information on a prospective client's board of directors and audit committee, and other background information to make judgments pertaining to client acceptance, risk, and audit planning related to the extent and timing of substantive tests. Background information, such as management integrity, industry, client size and financial health of the client, is held constant across experimental conditions since our main objective is to analyse the effect of corporate governance on auditors' judgments. These variables are selected based on our review of the prior literature. We provide the same background description of the hypothetical client in the experimental instrument for each treatment condition. Client background information provided to participants include products manufactured, industry information (intensity of competition, major competitors and their market share, client's market share), size (number of employees), founding year and listing status, ownership data, management integrity, and predecessor auditor. We also provide financial statements containing two years of data and financial ratios for each year including the percentage change from the prior year and industry comparatives. The hypothetical company, Alpha Ltd, is a recently-listed manufacturer of computer hardware components and has moderate financial health.<sup>4</sup> The research instrument, including the debriefing and demographic questions, is developed in consultation with the participating Big 4 firms.

#### 3.2. Participants

Audit managers from three of the Big 4 audit firms in Singapore participated in the study. We liaised with the contact partner or manager at each firm. In our preliminary discussions and during the pilot tests, we canvassed usual experimental issues with emphasis on auditors' understanding of corporate governance and its implications for financial reporting and the external audit. Each participating audit firm provided considerable in-house and external training to their auditors on corporate governance issues. We also reviewed Big 4 firms' publications that disseminate corporate governance developments to staff and clients. We include only audit managers in our study and exclude lower level staff as the latter are less likely to have sufficient experience and knowledge to address corporate governance issues and make appropriate planning and client acceptance judgments.

All participants hold a university degree and

57% are males. The mean audit experience of the managers is 7.15, 5.98 and 7.37 years, respectively for the weak, moderate and strong governance treatment conditions. The use of audit managers is appropriate for reasons that they work closely with audit partners and assist in the client acceptance judgment. The audit managers indicated that they have prior involvement in the client acceptance process. At least 50% of the participants had discussed issues related to client acceptance with external parties such as prior auditors, bankers, and lawyers; 80% had previously evaluated a new client's financial status; 88% had gathered background information on a potential client; 88% previously evaluated a new client's internal control environment; and 92% of auditors had prior experience evaluating a new client's financial reporting system. Although audit partners make the final client acceptance decisions, only in exceptional circumstances would they deviate from the audit managers' recommendations. ANOVA results show no significant differences ( $p > 0.10$ ) among the three treatment conditions with respect to the various activities and the experience (in years) of the audit managers. This suggests our random allocation is successful.

We conducted the pilot study and experiment in December 2002, following the publication of the Singapore Code in early 2001. The Big 4 in Singapore implemented specialist corporate governance teams/centres following the Asian financial crisis and injected further resources when the Singapore governance code was first drafted.

Experimental instruments were delivered to each of the audit firm's representative in random order.<sup>5</sup> We instructed the representatives to randomly distribute the sealed envelopes containing the experimental instrument. All responses were anonymous and confidential. The research instruments ask participants to complete the experimental tasks individually and without discussion with their peers. As the participants completed the experimental tasks in their own time, we were unable to verify individual completion. Our discussion with the contact person at each of the participating Big 4

<sup>4</sup> We determined Alpha's moderate financial health by developing its financial statements based on industry averages and reviewing several listed companies' financial statements. We resized the draft financial statements and included them with selected financial ratios in our pilot tests. Using a seven-point scale for the financial items anchored (1) very low to (7) very high, several audit partners ( $n=4$ ) and managers ( $n=9$ ) participating in our pilot tests assessed the financial health of Alpha as moderate. These auditors were provided the complete experimental instrument and made their judgments on the items and scales as described in the method section. The mean for the four financial status items ranged between 3.46 and 4.18.

<sup>5</sup> The experimental instrument is available upon request from the corresponding author.



firms before and after the experiment did not indicate any problem with task completion.<sup>6</sup>

We achieved a response rate of 58% based on the distribution of 105 research instruments.<sup>7</sup> We removed one incomplete instrument which resulted in 60 usable responses that are equally distributed across the three experimental conditions. We could not ask for more participants because of resource constraints expressed by the participating firms. Although we do not achieve our minimum sample size per cell, our post hoc power and effect size analyses reported in the 'Results' section indicate that we achieved high power and large effects. Accordingly, we do not need a larger sample size per cell (Cohen, 1988).

### 3.3. Independent variables

The experimental treatment in our study is the strength of corporate governance manipulated as weak, moderate or strong along dimensions of corporate governance that are identical across our three experimental conditions. Our experimental construct is based on corporate governance regulations, findings in the prior literature (Carcello and Neal, 2000; Cohen and Hanno, 2000; Cohen et al., 2002; Carcello and Neal, 2003; Bedard and Johnstone, 2004) and governance practices by companies. The three experimental conditions with respect to board and audit committee characteristics are summarised in Exhibit 1. We include a column in Exhibit 1 that relates the various dimensions of corporate governance to the agency and resource dependence theories and are identified as 'agency' and 'resource', respectively, and those related to both are identified as 'agency & resource'.

<sup>6</sup> We assess random distribution of audit managers from the three Big 4 audit firms across the three experimental conditions and find the Chi-square statistic is not significant ( $\chi^2 = 6.976$ ,  $p = 0.14$ ). We also included audit firm affiliation as a covariate in all our analyses and find it is not significant in all tests nor does it influence our results in any way.

<sup>7</sup> To ensure our statistical analyses have sufficient statistical power for making valid inferences, we estimated our sample size for each cell based on a range of medium ( $f = 0.25$ ) to large ( $f = 0.40$ ) effect size and high statistical power (0.80) at an alpha of 5%. A practically meaningful effect size in the social sciences is greater than a small effect size (see Cohen, 1988 for details). Using these parameters and tables in Cohen (1988), we estimated a minimum sample size of 21 and maximum of 52 participants per cell.

<sup>8</sup> We include a question asking respondents to assess the integrity of management, a variable we control. We include this question here rather than as part of our manipulation check questions because auditors in our pilot test stated this is one of the foremost client factors they evaluate.

<sup>9</sup> Although the accept/reject scale had an increasing order, 1 at the reject end and 6 at the accept end, the respondents formed their own interpretations of the meaning of the numbers 1–3 in the reject region, and 4–6 in the accept region.

<sup>10</sup> In practice, auditors use scales with verbal anchors such as 'low', 'moderate' and 'high' when making audit judgments. Consistent with the prior literature, we attach numerical anchors to facilitate statistical analyses.

The column also identifies the theoretical construct (e.g. independence, expertise, experience, reputation) associated with the governance dimensions.

We provide descriptive information about the activities of the board and audit committee, and background information of each director such as their experience, qualifications and outside directorships. Some of the corporate governance information presented in the experimental instruments is commonly disclosed in annual reports. Based on such information, participants in the experiment have to form their own judgments about the effectiveness of the hypothetical client's corporate governance. This is reflective of the condition in practice where auditors assess the strength of corporate governance based on their observations of directors' characteristics such as independence, experience, expertise and reputation. Participants are not specifically told whether the board or audit committee is effective in discharging its responsibilities. By doing so, we also minimise any internal validity threats arising from demand characteristics.

### 3.4. Dependent variables

The dependent variables comprise client acceptance, risk, and audit planning judgments. They are elicited based on questions in the research instrument.<sup>8</sup> The first question asks respondents to indicate on a six-point scale whether they recommend accepting or rejecting the client, where one to three are categorised on the scale as 'reject', and four to six are categorised as 'accept'.<sup>9</sup> For the purposes of statistical analysis, a higher number represents a more favourable client acceptance recommendation. An even-numbered scale ensures respondents make a choice between accept or reject.

For the remainder of the judgment tasks, participants respond on a seven-point Likert scale ranging from 'very low' (1) to 'very high' (7).<sup>10</sup> The second question asks participants to rate the integrity of management followed by questions related to inherent risk and control environment risk. Control environment risk as elicited in our experiment is more narrowly defined as the risk relating to the control environment. As this definition is limited to entity-level risk, our results may not be comparable to prior research that examines control risk at the specific financial statement assertion level. Participants are also required to make four audit planning judgments. These four questions comprise the extent of auditor's planned reliance on the client's internal controls, the number of planned audit hours required to complete the audit, the extent of planned substantive tests, and the extent of substantive tests planned for the year-end audit.



**Exhibit 1**

**Experimental manipulation of corporate governance**

<i>Strong</i>	<i>Moderate</i>	<i>Weak</i>	<i>Theory (construct)</i>
Majority of independent directors on the board	Equal numbers of independent and non-independent directors on the board	Majority of non-independent directors on the board	Agency (independence)
Board has independent and full access to the company's information and senior management	Board has access to company's information and senior management	Board does not have independent and full access to company's information and senior management	Agency (independence)
Chairman of board is an independent outsider	The CEO also serves as the Chairman of the board	The CEO also serves as the Chairman of the board	Agency (duality)
Board met eight times during the financial year and all meetings received full attendance	Board met five times during the year and all meetings except one received full attendance	Board met three times during the year and all meetings did not receive full attendance	Agency (diligence)
All directors have accounting and/or finance expertise	Four out of six directors have accounting and/or finance expertise	Three out of six directors have accounting and/or finance expertise	Agency (expertise)
All directors except one hold outside directorships	Four out of six directors hold outside directorships	Only one director holds an outside directorship	Agency (reputation) & Resource (experience, expertise, networking)
Directors have an average of 10.8 years of experience as a director	Directors have an average of 4.3 years of experience as a director	Directors have an average of 2.7 years of experience as a director	Resource (experience)
All outside directors have relevant industry experience	Some outside directors have relevant industry experience	None of the outside directors have relevant industry experience	Resource (industry knowledge)
Audit committee is comprised solely of independent directors	Audit committee has two out of three independent directors	Audit committee has a majority of non-independent directors	Agency (independence)
Audit committee met regularly with the internal and external auditors without top management present	Audit committee met occasionally with the internal and external auditors without top management present	Little communication between the audit committee and external auditors	Agency (independence & diligence)

Exhibit 1 Experimental manipulation of corporate governance (continued)			
Strong	Moderate	Weak	Theory (construct)
Audit committee met six times during the financial year	Audit committee met four times during the year	Audit committee met three times during the year	Agency (diligence)
All audit committee members have accounting and/or finance expertise	All audit committee members have accounting and/or finance expertise	One out of three audit committee members have accounting and/or finance expertise	Agency (expertise)
All audit committee members hold outside directorships	Two out of three audit committee members hold outside directorships	None of the audit committee members hold an outside directorship	Agency (reputation) & Resource (experience, expertise)
Audit committee members have an average of nine years of experience as a director	Audit committee members have an average of 3.7 years of experience as a director	Audit committee members have an average of 2.7 years of experience as a director	Resource (experience)

### 3.5. Pilot test

Thirteen auditors from the Big 4 firms not taking part in the main study pre-tested the experimental instruments. We also asked them to consider the realism of the case, the nature and amount of information provided including the background, corporate governance and financial results of the client. They were also asked to comment on their understanding and order of the audit judgment questions. Following the pilot-test, we made some editorial changes to the research instruments and added the notes accompanying the complete financial statements. Our discussions with the auditors indicated they had no problems understanding the case and the questions. They confirmed that the nature and sequence of the questions follow practice although they mentioned that some judgments (e.g. risk assessments) are made simultaneously.

## 4. Results

### 4.1. Manipulation check and descriptive statistics

We check the manipulation of our experimental treatments based on participants' rating of each of the following: (i) the overall strength of the client's corporate governance (GOV)<sup>11</sup> (ii) board of directors (BOD) and; (iii) the audit committee (AC) on separate seven-point Likert scales ranging from 'very low' (1) to 'very high' (7). Since these are related variables, we perform a MANOVA (Wilks' Lambda statistical test) followed by post-hoc tests.<sup>12</sup>

The MANOVA results show that our manipulation of governance is significantly different (Wilks' Lambda = 0.29,  $F = 24.0$ ,  $p < 0.01$ ) across the treatment conditions for GOV, BOD and AC. The group means (SD) for GOV are 2.65 (0.745), 4.05 (1.099) and 5.10 (0.718) for the weak, moderate and strong corporate governance treatment conditions, respectively. The group means (SD) for BOD are 2.80 (0.834), 4.20 (0.951) and 5.25 (0.967) for the weak, moderate and strong treatment condi-

tions, respectively. For AC, the group means (SD) are 2.25 (0.851), 4.35 (1.040) and 5.55 (0.945) for the weak, moderate and strong treatment conditions, respectively. Our post-hoc tests of mean differences show significant differences ( $p < 0.01$ ) in participants' ratings for both BOD and AC between the weak and strong, weak and moderate, as well as moderate and strong governance treatment conditions. We conclude that participants perceived the strength of the board and audit committee as intended by our experimental manipulations.

We also ask participants to rate the financial status of the hypothetical client on four dimensions (i.e. profitability, liquidity, leverage and operating activity) that are held constant across the three treatment conditions. We find no significant differences in participants' ratings of financial status across the three treatment conditions.<sup>13</sup> Recall that participants also rate the integrity of management as part of their audit judgments, consistent with what auditors do in practice. We observe some differences in management integrity ratings but these are significant ( $p < 0.05$ ) between the weak and strong governance conditions only. When we include management integrity as a covariate in our analyses, it is not significant and it does not qualitatively affect the effects of corporate governance.<sup>14</sup>

Table 1 presents the correlation matrix for all the dependent variables. The data in Table 1 show significant correlations among the audit judgment variables. For example, control environment risk is highly and positively correlated with the extent of planned substantive testing ( $r = 0.47$ ,  $p < 0.01$ ). This is not unexpected as audit judgments are inter-related. We design and use appropriate statistical analyses that consider these inter-relationships.

### 4.2. Test of hypotheses

#### 4.2.1. Corporate governance and client acceptance judgments

The ANOVA results in Table 2, Panel A show that corporate governance (GOVSGH)<sup>15</sup> significantly influences auditors' client acceptance judgment ( $F = 11.356$ ,  $p < 0.01$ ). The means (SD) for the ACCEPT judgment in Table 2, Panel B are 3.95 (0.826), 4.85 (0.671) and 4.95 (0.686) for the weak, moderate and strong governance treatment conditions, respectively. The results for test of H1 in Table 2 show a significant difference ( $p < 0.01$ ) for ACCEPT across the corporate governance treatment conditions. The post-hoc analyses in Panel C show significant differences ( $p < 0.01$ ) between the weak and strong, and between the weak and moderate corporate governance conditions. On the other hand, ACCEPT is not significantly different between the strong and moderate treatment conditions. The results suggest that auditors make more favourable client acceptance recommendations

<sup>11</sup> 'Overall governance refers to a respondent's total perception of the combination of: activities and composition of the client's board of directors; the audit committee; and the background of the directors.

<sup>12</sup> MANOVA is a multiple analysis of variance test and is used when there are two or more related dependent variables (Hair et al., 1995).

<sup>13</sup> For each treatment condition, weak, moderate and strong, the mean (SD),  $F$  and  $p$ -values are: (1) profitability: 3.35 (0.59), 3.15 (0.88) and 3.65 (0.88),  $F = 2.025$ ,  $p > 0.10$ ; (2) liquidity: 4.60 (0.94), 4.95 (0.99), 5.10 (1.16),  $F = 1.219$ ,  $p > 0.10$ ; (3) leverage: 3.85 (1.18), 3.40 (0.94), 3.55 (1.05),  $F = 0.931$ ,  $p > 0.10$ ; and (4) operating activity: 4.45 (0.61), 4.05 (0.95), 4.15 (0.75),  $F = 1.434$ ,  $p > 0.10$ .

<sup>14</sup> The  $F$ -values and relevant levels of significance for management integrity as a covariate in our analyses reported in Tables 2 to 4 range between 1.653 ( $p = 0.19$ ) to 0.972 ( $p = 0.413$ ).

<sup>15</sup> GOVSGH represents the three treatment conditions: weak, moderate or strong governance.



**Table 1**  
**Pearson correlations for audit judgment (dependent) variables (n = 60)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) ACCEPT	1.000						
(2) INHRK	-0.203	1.000					
(3) CONRK	-0.136	0.459***	1.000				
(4) PLAINTCT	0.306**	-0.014	-0.357***	1.000			
(5) PLAUDHR	-0.305**	0.236*	0.240*	-0.209	1.000		
(6) PLASUBT	-0.294**	0.336***	0.469***	-0.502***	0.720***	1.000	
(7) PLASUBYE	-0.312**	0.090	0.254**	-0.734***	0.420***	0.504***	1.000

*Key to Table 1*

ACCEPT	Auditors' client acceptance/rejection recommendation measured on a 1–6 point scale where 1–3 represents reject and 4–6 represents accept.
INHRK	Auditors' assessment of inherent risk measured on a 1–7 point scale where higher values indicate greater risk.
CONRK	Auditors' assessment of control environment risk measured on a 1–7 point scale where higher values indicate greater risk.
PLAINTCT	Auditors' assessment of the extent of planned reliance on the client's internal controls measured on a 1–7 point scale where higher values indicate greater reliance.
PLAUDHR	Auditors' assessment of planned audit hours the client requires measured on a 1–7 point scale where higher values indicate greater numbers of audit hours required.
PLASUBT	Auditors' assessment of the extent of planned substantive testing measured on a 1–7 point scale where higher values indicate greater extent of testing.
PLASUBYE	Auditors' assessment of the extent of substantive tests planned for the year-end audit measured on a 1–7 point scale where higher values indicate higher amounts of substantive tests planned.

\*\*\* =  $p < 0.01$ , \*\* =  $p < 0.05$ , \* =  $p < 0.10$

when corporate governance is stronger, which provides partial support for our hypothesis.<sup>16</sup>

#### 4.2.2. Corporate governance and risk assessments

Since the correlations in Table 1 indicate significant correlations among auditors' assessment of con-

trol environment risk (CONRK) and auditors' assessment of inherent risk (INHRK), we test H2 using a MANOVA. The MANOVA results in Table 3, Panel A show that corporate governance (GOVSGH) significantly influences auditors' risk assessments (Wilks' Lambda = 0.749,  $F = 4.357$ ,  $p < 0.01$ ). The mean (SD) ratings for INHRK are 4.25 (0.716), 3.90 (0.718) and 4.05 (1.234) for the weak, moderate and strong governance treatment conditions, respectively. The mean (SD) ratings for CONRK are 4.20 (0.951), 4.10 (0.852) and 3.25 (0.910) for the weak, moderate and strong governance treatment conditions, respectively. Analysis of Variance test results in Panel B show that CONRK ( $F = 6.645$ ,  $p < 0.01$ ) is significantly influenced by corporate governance whereas INHRK ( $F = 0.725$ ,  $p > 0.10$ ) is not.

Further analyses in Panel C indicate significant differences in CONRK between the weak and strong governance treatment conditions ( $p < 0.01$ ), and between the moderate and strong governance treatment conditions ( $p < 0.01$ ). Surprisingly there is no difference in CONRK between the weak and moderate conditions. We do not offer any explanation for this observation. We believe further research is required to confirm and understand our observation. Overall,

<sup>16</sup> We also conduct Chi-square tests of the client acceptance recommendation by analysing client acceptance and rejection recommendations as a dichotomous variable. The six-point scale for this judgment anchored scale-points 1–3 as reject and 4–6 as accept. There were seven reject recommendations made by auditors in the weak governance condition and none in the moderate and strong governance conditions. Our results show auditors in the weak governance condition recommend statistically significantly ( $\chi^2 = 35.267$ ,  $p < 0.01$ ) more client rejections than the auditors in the moderate and strong governance conditions. There was no statistically significant difference in auditors' client acceptance recommendations between the moderate and strong governance conditions. We also note that auditors in the weak governance condition made more borderline recommendations (scores on the six-point scale as 3 and 4 – refer 'Research Design and Method' section) relative to those in the moderate and strong governance conditions. The percentages of auditors making such recommendations are 70%, 30% and 25% for the weak, moderate and strong governance conditions, respectively. These proportions differ significantly between the weak, and the moderate and strong governance conditions ( $\chi^2 = 43.000$ ,  $p < 0.01$ ).

**Table 2**  
**Effect of the strength of corporate governance on auditors' client acceptance judgment**

**Panel A: ANOVA of corporate governance strength (GOVSGH) on ACCEPT**

	<i>F</i>	<i>p</i>	<i>Partial Eta Sq</i>	<i>Power</i>
Intercept	2359.401	0.000	0.976	1.000
GOVSGH	11.356	0.000	0.285	0.990

**Panel B: Summary statistics for ACCEPT**

	<i>Weak governance</i> <i>n = 20</i>		<i>Moderate governance</i> <i>n = 20</i>		<i>Strong governance</i> <i>n = 20</i>		
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>F</i>
ACCEPT	3.95	0.826	4.85	0.671	4.95	0.686	11.356***

\*\*\* =  $p < 0.01$ , \*\* =  $p < 0.05$ , \* =  $p < 0.10$

**Panel C: Post-hoc analyses (difference in means) on ACCEPT**

	<i>Weak v strong</i> <i>governance</i>	<i>Weak v moderate</i> <i>governance</i>	<i>Moderate v strong</i> <i>governance</i>
ACCEPT	1.00 (4.327)***	0.90 (3.894)***	0.10 (0.424)

**Key to Table 2**

ACCEPT: Auditors' client acceptance/rejection recommendation measured on a 1–6 point scale where 1–3 represents reject and 4–6 represents accept.

GOVSGH: Represents the three treatment conditions, weak, moderate or strong governance.

\*\*\* =  $p < 0.01$ , \*\* =  $p < 0.05$ , \* =  $p < 0.10$  (one-tailed significance)

the results in Table 3 are consistent with our hypothesis and suggest that when auditors perceive stronger governance they lower their assessment of control environment risk. The mean ratings for INHRK do not vary significantly between the three treatment conditions, implying that auditors do not emphasise corporate governance when assessing inherent risk. These results are consistent with Cohen et al. (2007).

**4.2.3. Corporate governance and extent of planned substantive testing**

We conduct a MANCOVA to test H3a, H3b and H4 because of significant correlations among the dependent variables, the extent of planned reliance on the client's internal controls (PLAINTCT), extent of planned substantive testing (PLASUBT), and the extent of substantive tests planned for the year-end (PLASUBYE). Auditors' assessment of control environment risk (CONRK)<sup>17</sup> is the covariate. The MANCOVA results in Table 4, Panel A show the strength of corporate governance (GOVSGH) significantly influences PLAINTCT, PLASUBT and PLASUBYE (Wilks' Lambda = 0.669,  $F = 4.012$ ,  $p < 0.01$ ). This effect is observed after controlling for the effect of CONRK which is significant as well ( $F = 4.317$ ,  $p < 0.01$ ). As presented in Table 4, Panel B, the mean ratings (SD) for PLAINTCT are 3.10 (0.852), 4.10 (0.968) and 4.70

(0.923) for the weak, moderate and strong governance treatment conditions, respectively. These means are significantly different ( $F = 11.246$ ,  $p < 0.01$ ). Similarly, the mean ratings (SD) for PLASUBT are 4.90 (0.968), 4.15 (0.875) and 3.75 (0.967) for the weak, moderate and strong governance treatment conditions, respectively, and they are significantly different ( $F = 4.468$ ,  $p < 0.05$ ).<sup>18</sup>

<sup>17</sup> We control for control environment risk for two reasons: (1) theoretically, control environment risk affects the nature and extent of substantive tests, and (2) our results show a significant association between corporate governance and control environment risk. Including control environment risk as a covariate allows us to distinguish and isolate the extent of influence corporate governance has on substantive tests. If we do not include the covariate, CONRK, we find a more significant and larger effect of GOVSGH (MANOVA results: Wilks Lambda = 0.607,  $F = 5.197$ ,  $p = 0.00$ , Partial Eta Squared = 0.221, and Power = 0.993) on auditors' planning judgments (PLAINTCT, PLASUBT and PLASUBYE). This suggests that in some cases where the results are marginal, exclusion of the covariate increases the significance of the effect of corporate governance.

<sup>18</sup> The mean ratings (SD) for PLAUDHR (extent of planned audit hours) are 4.90 (0.968), 4.40 (0.754), and 4.10 (0.718) for the weak, moderate and strong governance conditions, respectively, and are significantly different ( $F = 3.335$ ,  $p < 0.05$ ). We exclude this variable from the MANCOVA at the suggestion of a reviewer because it is highly correlated with PLASUBT ( $r = 0.720$ ,  $p < 0.01$ ). Inclusion of this variable in the MANCOVA does not affect the results.

**Table 3**  
**Effect of the strength of corporate governance on auditors' risk judgments**

**Panel A: MANOVA of corporate governance strength (GOVSGH) on INHRK and CONRK**

	<i>Wilks Lambda</i>	<i>F</i>	<i>p</i>	<i>Partial Eta Sq</i>	<i>Power</i>
Intercept	0.037	736.044	0.000	0.963	1.000
GOVSGH	0.749	4.357	0.003	0.135	0.924

**Panel B: Summary statistics and ANOVA for INHRK and CONRK**

	<i>Weak governance</i> <i>n = 20</i>		<i>Moderate governance</i> <i>n = 20</i>		<i>Strong governance</i> <i>n = 20</i>		
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>F</i>
INHRK	4.25	0.716	3.90	0.718	4.05	1.234	0.725
CONRK	4.20	0.951	4.10	0.852	3.25	0.910	6.645***

\*\*\* =  $p < 0.01$ , \*\* =  $p < 0.05$ , \* =  $p < 0.10$

**Panel C: Post-hoc analyses (difference in means) on INHRK, CONRK and AUDRK**

	<i>Weak v strong</i> <i>governance</i>	<i>Weak v moderate</i> <i>governance</i>	<i>Moderate v strong</i> <i>governance</i>
INHRK	0.20 (0.685)	0.35 (1.199)	0.15 (0.514)
CONRK	0.95 (3.322)***	0.10 (0.350)	0.85 (2.972)***

**Key to Table 3**

INHRK	Auditors' assessment of inherent risk measured on a 1–7 point scale where higher values indicate greater risk.
CONRK	Auditors' assessment of control environment risk measured on a 1–7 point scale where higher values indicate greater risk.
GOVSGH	Represents the three treatment conditions, weak, moderate or strong governance.

\*\*\* =  $p < 0.01$ , \*\* =  $p < 0.05$ , \* =  $p < 0.10$  (one-tailed significance)

The results in Table 4, Panel B show that PLASUBYE is significantly ( $F = 4.559$ ,  $p < 0.05$ ) influenced by GOVSGH. The mean (SD) ratings for PLASUBYE shown in Panel B are 4.75 (0.967), 4.10 (0.968) and 3.60 (1.095) for the weak, moderate and strong governance treatment conditions, respectively.

The results of our post-hoc analyses in Panel C of Table 4 show significant differences ( $p < 0.05$  or better) in auditors' ratings for PLASUBYE between all treatment conditions. Similarly, PLASUBT is significantly ( $p < 0.01$ ) different between the weak and strong, and weak and moderate governance treatment conditions. It is marginally different ( $p < 0.10$ ) between the moderate and strong governance treatment conditions. The results in Panel C of Table 4 show PLASUBYE is significantly different between the weak and strong ( $p < 0.01$ ), and weak and moderate ( $p < 0.05$ ) governance treatment conditions, and marginally significantly ( $p < 0.10$ ) different between the moderate and strong governance treatment conditions.

Overall, our observations suggest that when au-

ditors perceive stronger corporate governance, they increase their reliance on internal control and reduce the extent of substantive testing. The converse is true for weaker corporate governance. These findings are consistent with H3a and H3b. Similarly, our results imply that auditors plan a greater extent of substantive testing during the interim period when corporate governance is stronger. This is consistent with H4. Our results provide empirical support for Cohen et al.'s (2002) proposition. Based on their interviews with auditors, Cohen et al. (2002) propose that stronger corporate governance should allow auditors to rely on the internal controls in place, and hence reduce the extent of costly substantive testing. Our significant results for the effect of the strength of corporate governance on audit judgments are beyond that explained by control environment risk. This suggests that corporate governance has implications that extend beyond the control environment. Such a view is consistent with the resource dependence theory that argues corporate governance influences corporate strategy and performance.



**Table 4**  
**Effect of the strength of corporate governance on auditors' planning judgments**

**Panel A: MANCOVA of corporate governance strength (GOVSGH) on PLAINTCT, PLASUBT and PLASUBYE with CONRK as the covariate**

	<i>Wilks Lambda</i>	<i>F</i>	<i>p</i>	<i>Partial Eta Sq</i>	<i>Power</i>
Intercept	0.235	58.642	0.000	0.765	1.000
GOVSGH	0.669	4.012	0.001	0.182	0.966
CONRK	0.807	4.317	0.008	0.193	0.842

**Panel B: Summary statistics and ANOVA for PLAINTCT, PLASUBT and PLASUBYE on GOVSGH**

	<i>Weak governance</i> <i>n = 20</i>		<i>Moderate governance</i> <i>n = 20</i>		<i>Strong governance</i> <i>n = 20</i>		
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>F</i>
PLAINTCT	3.10	0.852	4.10	0.968	4.70	0.923	11.246***
PLASUBT	4.90	0.968	4.15	0.875	3.75	0.967	4.468**
PLASUBYE	4.75	0.967	4.10	0.968	3.60	1.095	4.559**

\*\*\* =  $p < 0.01$ , \*\* =  $p < 0.05$ , \* =  $p < 0.10$

**Panel C: Post-hoc analyses (difference in means) on PLAINTCT, PLASUBT and PLASUBYE**

	<i>Weak v strong</i> <i>governance</i>	<i>Weak v moderate</i> <i>governance</i>	<i>Moderate v strong</i> <i>governance</i>
PLAINTCT	1.60 (5.517)***	1.00 (3.448)***	0.60 (2.069)**
PLASUBT	1.15 (3.885)***	0.75 (2.534)***	0.40 (1.351)*
PLASUBYE	1.15 (3.538)***	0.65 (2.031)**	0.50 (1.563)*

*Key to Table 4*

PLAINTCT	Auditors' assessment of the extent of planned reliance on the client's internal controls measured on a 1–7 point scale where higher values indicate greater reliance.
PLASUBT	Auditors' assessment of the extent of planned substantive testing measured on a 1–7 point scale where higher values indicate greater extent of testing.
PLASUBYE	Auditors' assessment of the extent of substantive tests planned for the year-end audit measured on a 1–7 point scale where higher values indicate higher amounts of substantive tests planned.
CONRK	Auditors' assessment of control environment risk measured on 1–7 point scale where higher values indicate greater risk.
GOVSGH	Represents the three treatment conditions, weak, moderate or strong governance.

\*\*\* =  $p < 0.01$ , \*\* =  $p < 0.05$ , \* =  $p < 0.10$  (one-tailed significance)

## 5. Discussion and conclusions

We hypothesise effects of the board and the audit committee on a comprehensive set of audit judgments in an institutional environment where corporate governance is not mandated by law but adoption is voluntary. Our results based on 60 Big 4 audit managers from Singapore show that

when corporate governance is stronger, auditors make more favourable client acceptance recommendations, assess lower control environment risk, place greater reliance on internal controls, perform less extensive substantive tests, and perform more substantive testing at the interim audit.<sup>19</sup> These results suggest that auditors in Singapore engage in risk-adaptation strategies, which is consistent with prior findings in the US (Messier and Plumlee, 1987; Maletta and Kida, 1993; Johnstone, 2000) and more recent US governance research (e.g. Cohen et al., 2007).

Our test results show that although auditors perceive differences between the strong and moderate corporate governance conditions, such differences are perceived not as significant as those between the weak and strong governance conditions. These differences suggest that the risk reduction effect of

<sup>19</sup> Conversion of our reported effect size statistics, the Partial Eta-squared, in Tables 2 to 4 to its equivalent effect size,  $f$ , yields a minimum effect size of 0.40 and a maximum effect size of 0.63. The resultant  $f$ s are large effects (Cohen, 1988) and suggest that corporate governance has considerable practical or economic significance for audit judgments. That is, in addition to being statistically significant, our results indicate that auditors find corporate governance important and useful when making audit judgments. The statistical power results suggest our analyses are reliable and the inferences drawn are valid.

corporate governance on audit program planning judgments is greater when corporate governance improves from weak to strong than from moderate to strong.

Consistent with Cohen et al. (2007), we find no significant effect of corporate governance on inherent risk. This could be due to one or more of the following and deserves further research. First, because of knowledge-based dependence between inherent risk and control environment risk (Messier and Austen, 2000), auditors may have given greater weight to corporate governance in the control environment risk judgment than in the inherent risk judgment. Second, it is possible that auditors do not recognise corporate governance as an inherent risk factor although it plays a significant role in the strategic process of the organisation. Development of decision aids and/or training may be useful to enhance auditors' understanding and utilisation of corporate governance information when making inherent risk, and perhaps, other audit judgments.<sup>20</sup>

There are limitations in our study. First, our manipulation of the resource dependence aspect of corporate governance was limited to the structure of the board and audit committee. We encourage future research to manipulate board processes (e.g. directors' involvement in board activities, number of board sub-committees directors serve on, industry networks) to provide greater insight on how various dimensions of resource dependence aspects of governance affect decision making. Second, we manipulate corporate governance treatment on an assumption that the strength of the audit committee derives linearly from the board. That is, the audit committee is strong (weak) when the board of directors is strong (weak). Future research may manipulate the strength of both the board of directors and audit committee to allow for the possibility, particularly in voluntary governance environments, of a strong board with a weak audit committee and vice versa. In addition, we do not investigate how differences between Singapore and the Western economies, in respect of culture and institutional factors such as legal protection and ownership structure, affect corporate governance and auditors' judgments.

Since the participants in our experiment are limited to audit managers from the Big 4 audit firms, our findings might not be generalisable to other staff levels and to non-Big 4 firms. Nevertheless, audit managers are frequently called to make client acceptance recommendations in practice, which likely influence audit partners' decisions. We hold the industry, financial condition and size of the hypothetical client constant for all three treatment conditions. Future research may explore how these

factors interact with corporate governance and affect auditors' judgments. Finally, we acknowledge that when auditors make client acceptance and planning judgments, they consider the potential billing rate, cost of the audit and the risk-return trade-off. These considerations are likely to vary across client characteristics such as size, financial condition, industry, public or non-public company, management reputation, and the risks of the specific accounting-cycle. While we control these factors by holding them constant across our experimental conditions, our results are limited to the extent such characteristics may influence auditors' judgments. Further research could consider the economic impact of these client characteristics and corporate governance on audit judgments.

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